IS 6851 (1973): Meat Extract, Microbiological Grade [FAD 15: Food Hygiene, Safety Management and Other Systems]

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Indian Standard

SPECIFICATION FOR MEAT EXTRACT, MICROBIOLOGICAL GRADE

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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SPECIFICATION FOR MEAT EXTRACT, MICROBIOLOGICAL GRADE

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Indian Standard

SPECIFICATION FOR MEAT EXTRACT, MICROBIOLOGICAL GRADE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 February 1973, after the draft finalized by the Food Hygiene, Sampling and Analysis Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Unless the ingredients used in media for microbiological work are of uniform quality, the results obtained might be erroneous and might be unreliable. Since the media used in different laboratories often differ greatly in their quality, the results of microbiological work at different laboratories can not be compared. Therefore, with a view to unifying the practices of different laboratories dealing with microbiology and providing guidance to the indigenous manufacturers regarding the quality, it was decided to bring out a series of Indian Standard specifications for ingredients used in media for microbiological work.

0.2.1 For specific purposes, any additional requirements shall be as agreed to between the purchaser and the supplier.

0.3 Meat extract is widely used in microbiology laboratories. It is usually prepared by evaporation of an aqueous solution of lean meat, usually beef, freed from excess of fat.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard prescribes the requirements and the methods of test for meat extract, microbiological grade.

*Rules for rounding off numerical values (*revised*).

2. REQUIREMENTS

2.1 A 0·3 percent solution in water shall show a clear straw coloured liquid having a *p*H approximately 6·0.

2.2 It shall be able to support and shall not inhibit the growth of micro-organisms when it is incorporated in suitable medium as the only growth supporting substance. The general guidelines for testing this characteristic are given in **19** of IS : 6854-1973*. In using the general guidelines, organisms, such as *Staphylococcus aureus* or *Escherichia coli*, shall be used as the test organism.

2.3 When sterilized at 121°C for 30 minutes, it shall not contain any viable micro-organism when tested in accordance with the method given in IS : 5402-1969†.

2.4 The material shall also conform to the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR MEAT EXTRACT

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Appendix	Clause Number of IS : 6854-1973*
(1)	(2)	(3)	(4)	(5)
i)	Total solids, percent by mass, *Min*	70	—	5
ii)	Ash, percent by mass, *Max*	18	—	6
iii)	Total nitrogen, percent by mass, *Min*	6	—	9
iv)	Fat, percent by mass, *Max*	0·1	—	10
v)	Sodium chloride, percent by mass, *Max*	6	—	11
vi)	Total creatinine, percent by mass, *Max*	8	A	—
vii)	Copper (as Cu), mg/kg, *Max*	15	—	15
viii)	Fermentable carbohydrates	Nil	—	20

*Methods of sampling and test for ingredients used in media for microbiological work.

3. PACKING, STORAGE AND MARKING

3.1 Packing — The material shall be securely packed in well-filled wide mouth containers with tightly fitting lids.

*Methods of sampling and test for ingredients used in media for microbiological work.

†Method for plate count of bacteria in foodstuffs.

3.2 Storage — The material shall be stored in a cool and dry place.

3.3 Marking — Each container shall be marked legibly to give the following information:

a) Name of the material including the words 'Microbiological Grade',

b) Name and address of the manufacturer,

c) Minimum net content, and

d) Batch or code number.

3.3.1 The container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 The representative samples of the material shall be drawn according to the method prescribed in **3** of IS : 6854-1973*.

5. TESTS

5.1 Tests shall be carried out by the methods prescribed in **2** and in col 4 and 5 of Table 1.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1960†) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the experimental results.

APPENDIX A

[*Table* 1, *Item* (vi)]

DETERMINATION OF TOTAL CREATININE CONTENT

A-1. APPARATUS

A-1.1 Absorptiometer or Duboscq (or Equivalent) Colorimeter

A-1.2 Autoclave or Boiling Water-Bath

*Methods of sampling and test for ingredients used in media for microbiological work.

†Specification for water, distilled quality (*revised*).

A-2. REAGENTS

A-2.1 Stock Meat Extract Solution — Blend pasty samples prior to weighing by warming so that sediment is incorporated. Prepare a 10 percent (*m/v*) stock solution using hot water to ensure solution of all soluble materials.

A-2.2 Creatinine Zinc Chloride Solution — Prepare a 0·160 3 percent (*m/v*) stock solution of creatinine zinc chloride in 0·1 N hydrochloric acid. Dilute ten times prior to use so that 1 ml of solution contains 0·1 mg creatinine.

A-2.3 Hydrochloric Acid Solution — 2 N.

A-2.4 Picric Acid Solution — 1 percent (standardized by titration to phenol red).

A-2.5 Sodium Hydroxide Solution — 2 N.

A-3. PROCEDURE

A-3.1 Hydrolyse 10 ml of stock meat extract solution (**A-2.1**) with 10 ml of hydrochloric acid by refluxing in a boiling water-bath for at least 2 hours or alternatively, autoclave for 20 minutes at 117 to 120°C. Cool, add 10 ml of sodium hydroxide solution and dilute to 500 ml (A) or, if no absorptiometer is available, to 250 ml (B).

A-3.1.1 *Absorptiometer Method* — To a series of dry 100 ml volumetric flasks add 5 ml or more of the hydrolyzed sample solution (A) and for the standard curve 0 (reagent blank), 2, 4, 6, 8, and 10 ml of the standard solution (**A-2.2**) (equivalent to 0 to 1·0 mg creatinine). To each flask add water to bring the volume to 20 ml and then add 20 ml of 1 percent picric acid solution (standardized by titration to phenol red) and 2·5 ml of 2 N sodium hydroxide solution. Allow the flasks to stand at 20°C for 15 minutes and then dilute each to the mark and filter. Reject the first runnings and measure the orange colour on the absorptiometer in a 1 cm cell at 520 mμ.

A-3.1.2 If no absorptiometer is available dilute the hydrolyzed solution to 250 ml (B) instead of 500 ml. Then to three 100-ml volumetric flasks add 20 ml of standard solution (*see* **A-2.2**) (≡ 2 mg creatinine) and two trial aliquots of 7 and 10 ml of the hydrolyzed solution of the sample (B). Make the volume in each flask up to 20 ml and then add 20 ml of 1 percent picric acid solution, 2·5 ml of 2 N sodium hydroxide solution, etc, as in the absorptiometer method above and compare the colours visually by Nesslerising or by using a Duboscq or equivalent colorimeter. If necessary calculate a more suitable aliquot to employ for the colour comparison and repeat the picric acid procedure.

A-3.2 Whichever method is used, calculate the percentage of total creatine and creatinine (as creatinine).

INDIAN STANDARDS

ON

FOOD HYGIENE, SAMPLING AND ANALYSIS

IS:

2491-1972 Code for hygiene conditions for food processing units (*first revision*)
5059-1969 Code for hygienic conditions for large scale biscuit manufacturing units and bakery units
5126 (Part I)-1969 Glossary of general terms for sensory evaluation of foods: Part I Methodology
5126 (Part II)-1969 Glossary of general terms for sensory evaluation of foods: Part II Quality characteristics
5398-1969 Methods of estimation of thiamine (vitamin B_1) in foodstuffs
5399-1969 Methods of estimation of reboflavin (vitamin B_2) in foodstuffs
5400-1969 Methods for estimation of nicotinic acid (niacin) in foodstuffs
5401-1969 Methods for detection and estimation of coliform bacteria in foodstuffs
5402-1969 Method for plate count of bacteria in foodstuffs
5403-1969 Method for yeast and mould count of foodstuffs
5404-1969 Code of practice for handling of food samples for microbiological analysis
5835-1970 Methods for estimation of vitamin D in foodstuffs
5837-1970 Code for hygienic conditions for soft drinks manufacturing units
5838-1970 Methods for estimation of vitamin C in foodstuffs
5839-1970 Code for hygienic conditions for manufacture, storage and sale of ice-creams
5886-1970 Methods for estimation of carotenes and vitamin A (retinol) in foodstuffs
5887-1970 Methods for detection of bacteria responsible for food poisoning and food-borne diseases
6540-1972 Code for hygienic conditions for manufacture and handling of ice for human consumption
6541-1972 Code for hygienic conditions for establishment and maintenance of mid-day school meal programme
6542-1972 Code for hygienic conditions for fruit and vegetable canning units
6850-1973 Agar, microbiological grade
6851-1973 Meat extract, microbiological grade
6852-1973 Bile salts, microbiological grade
6853-1973 Peptone, microbiological grade
6854-1973 Methods of sampling and test for ingredients used in media for microbiological work

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